

## AMENDMENTS TO THE CLAIMS

Amended claims follow:

1. (Currently Amended) A multicast packet duplication system for multicast packets containing at least multicast address data, comprising:  
an input port configured to receive a packet;  
a pointer table having a width comprising a plurality of entries coupled to a linked-list table; and  
a plurality of output ports configured to output the packet, wherein:  
a number of duplications of the packet for each of the plurality of output ports is controlled by descriptors arranged in ~~[[a]]~~the linked-list table indexed by a hashing function applied to said multicast address data;  
wherein an encoding format of the descriptors includes at least one of:  
a contiguous range encoding that includes a starting indicator and an ending indicator; or  
a non-contiguous range encoding that includes a most significant bit (MSB) portion of an indicator and a bitmap decoded from a least significant bit (LSB) portion of the indicator;  
and  
a discrete encoding that includes a first indicator and a second indicator;  
wherein the encoding format is configured to be selected in response to control bits;  
wherein each of the plurality of entries includes a pointer descriptor which includes a plurality of linked-list pointers corresponding to the plurality of output ports.
2. (Original) The packet duplication system of claim 1, wherein:  
each of the number of duplications is coupled to a Virtual Local Area Network (VLAN).
3. (Cancelled)
4. (Original) The packet duplication system of claim 1, wherein:  
the descriptors arranged in the linked-list table include at least one shared descriptor.

5. (Cancelled)

6. (Original) The packet duplication system of claim 5, wherein:  
each of the plurality of entries corresponds to one of the plurality of output ports.

7. (Previously Presented) The packet duplication system of claim 1, wherein:  
the contiguous range encoding includes a starting Virtual Local Area Network (VLAN) indicator and an ending VLAN indicator.

8. (Previously Presented) The packet duplication system of claim 1, wherein:  
the non-contiguous range encoding includes a most significant bit (MSB) portion of a Virtual Local Area Network (VLAN) indicator and a bitmap decoded from a least significant bit (LSB) portion of the VLAN indicator.

9. (Previously Presented) The packet duplication system of claim 1, wherein:  
the discrete encoding includes a first Virtual Local Area Network (VLAN) indicator and a second VLAN indicator.

10. (Cancelled)

11. (Currently Amended) A method of controlling a duplication of a multicast packet containing at least multicast address data, comprising:  
receiving the packet;  
performing a hashing function on said multicast address data;  
using the results of said hashing function as an index for a linked-list table;  
said linked-list table including a plurality of pointers;  
accessing a first multicast descriptor pointer in said linked-list table;  
said multicast descriptor pointer pointing to multicast descriptors comprised of at least multicast Virtual Local Area Network (VLAN) pointers;  
using at least one of said multicast VLAN pointers to access a multicast VLAN table comprised of second pointers to VLAN pointer descriptors;

accessing a VLAN pointer descriptor in response to the second pointer; and using information contained in said VLAN pointer descriptor to control applying an encoding for the duplication of the packet; wherein applying the encoding includes selecting a format of descriptors, the format including at least one of:

- a contiguous range encoding that includes a starting indicator and an ending indicator; or
- a non-contiguous range encoding that includes a most significant bit (MSB) portion of an indicator and a bitmap decoded from a least significant bit (LSB) portion of the indicator; and
- a discrete encoding that includes a first indicator and a second indicator;

wherein the format of the descriptors is selected in response to control bits;  
wherein a pointer table has a width comprising a plurality of entries coupled to said linked-list table, each of the plurality of entries including a pointer descriptor which includes a plurality of linked-list pointers corresponding to a plurality of output ports.

12. (Canceled)

13. (Cancelled)

14. (Original) The method of controlling the duplication of the packet of claim 11, wherein:  
each of a number of duplications is coupled to a Virtual Local Area Network (VLAN).

15. (Previously Presented) The method of controlling the duplication of the packet of claim 11, wherein:  
the VLAN pointer descriptor includes a shared descriptor.

16. (Previously Presented) The method of controlling the duplication of the packet of claim 11, wherein:  
the contiguous range encoding includes a starting Virtual Local Area Network (VLAN) indicator and an ending VLAN indicator.

17. (Previously Presented) The method of controlling the duplication of the packet of claim 11, wherein:

the non-contiguous range encoding includes a most significant bit (MSB) portion of a Virtual Local Area Network (VLAN) indicator and a bitmap decoded from a least significant bit (LSB) portion of the VLAN indicator.

18. (Previously Presented) The method of controlling the duplication of the packet of claim 11, wherein:

the discrete encoding includes a first Virtual Local Area Network (VLAN) indicator and a second VLAN indicator.

19. (Cancelled)

20. (Canceled)

21. (Currently Amended) A multicast packet duplication system for multicast packets containing at least multicast address data, comprising:

an input port configured to receive a packet;

a pointer table having a width comprising a plurality of entries coupled to a linked-list table; and

a plurality of output ports configured to output the packet; said output ports being coupled to one or more Virtual Local Area Networks (VLAN);

wherein said system applies a hashing function to the multicast address data of said multicast packets;

and wherein said system uses said hashing function as an index to [[a]]said linked-list table;

said linked-list table having entries that comprise at least either multicast descriptors or pointers to multicast descriptors;

said multicast descriptors being comprised of at least multicast VLAN descriptors or pointers to multicast VLAN descriptors;

wherein a number of distributions of said multicast packet and an output port distribution of said multicast packet is controlled by information stored in either the multicast descriptors or multicast VLAN descriptors;  
wherein an encoding format of said multicast VLAN descriptors include at least one of:  
a contiguous range encoding that includes a starting VLAN indicator and an ending VLAN indicator;  
a non-contiguous range encoding that includes a most significant bit (MSB) portion of a VLAN indicator and a bitmap decoded from a least significant bit (LSB) portion of the VLAN indicator; and  
a discrete encoding that includes a first VLAN indicator and a second VLAN indicator;  
wherein the encoding format is configured to be selected in response to control bits;  
wherein each of the plurality of entries of the pointer table includes a pointer descriptor which includes a plurality of linked-list pointers corresponding to the plurality of output ports.

22. (Cancelled)

23. (Previously Presented) The packet duplication system of claim 21, wherein said multicast descriptors also include a multicast packet time to live field.

24. (Previously Presented) The packet duplication system of claim 21, wherein said multicast Virtual Local Area Network (VLAN) descriptors contain a plurality of entries each describing the multicast packet distribution to a different VLAN.

25. (Currently Amended) A multicast packet duplication system for multicast packets containing at least multicast address data, comprising:  
an input port configured to receive a packet;  
a pointer table having a width comprising a plurality of entries coupled to a linked-list table; and  
a plurality of output ports configured to output the packet; said output ports being coupled to one or more Virtual Local Area Networks (VLAN);

wherein said system applies a hashing function to the multicast address data of said multicast packets;  
and wherein said system uses the result of said hashing function as an index to [[a]]said linked-list table;  
said linked-list table having entries that comprise either multicast descriptors or pointers to multicast descriptors;  
said multicast descriptors being comprised of at least multicast VLAN descriptors or pointers to multicast VLAN descriptors;  
wherein a number of distributions of said multicast packet and an output port distribution of said multicast packet is controlled by information stored in either the multicast descriptors or multicast VLAN descriptors;  
wherein said multicast VLAN descriptors contain a plurality of entries each describing the multicast packet distribution to a different VLAN; and  
wherein an encoding format of said VLAN descriptors include at least one of:  
a contiguous range encoding that includes a starting VLAN indicator and an ending VLAN indicator;  
a non-contiguous range encoding that includes a most significant bit (MSB) portion of a VLAN indicator and a bitmap decoded from a least significant bit (LSB) portion of the VLAN indicator; and  
a discrete encoding that includes a first VLAN indicator and a second VLAN indicator;  
wherein the encoding format is configured to be selected in response to control bits;  
wherein each of the plurality of entries of the pointer table includes a pointer descriptor which includes a plurality of linked-list pointers corresponding to the plurality of output ports.

26. (Currently Amended) A method of controlling a duplication of one or more multicast packets containing at least multicast address data, comprising:  
receiving the multicast packets;  
applying a hashing function to the multicast address data of said multicast packets;  
using the result of the hashing function as an index to a linked-list table;  
retrieving a multicast descriptor from said linked-list table;

using said multicast descriptor to find the multicast packet time to live data and a Virtual Local Area Network (VLAN) descriptor;  
obtaining information regarding how said multicast packets should be distributed to various output ports to at least one VLAN from said VLAN descriptor;  
and using this distribution information to distribute said multicast packets to said at least one VLAN;  
wherein an encoding format of said VLAN descriptor includes at least one of:  
a contiguous range encoding that includes a starting VLAN indicator and an ending VLAN indicator;  
a non-contiguous range encoding that includes a most significant bit (MSB) portion of a VLAN indicator and a bitmap decoded from a least significant bit (LSB) portion of the VLAN indicator; and  
a discrete encoding that includes a first VLAN indicator and a second VLAN indicator;  
wherein the encoding format is configured to be selected in response to control bits;  
wherein a pointer table has a width comprising a plurality of entries coupled to said linked-list table, each of the plurality of entries including a pointer descriptor which includes a plurality of linked-list pointers corresponding to a plurality of output ports.

27. (Previously Presented) The packet duplication system of claim 1, wherein a first descriptor in the linked-list table includes a first link to a second descriptor in the linked-list table.

28. (Previously Presented) The packet duplication system of claim 27, wherein the second descriptor in the linked-list table includes a second link to a third descriptor in the linked-list table.

29. (Cancelled)